

CLAIMS

1. A system for assessing blood circulation in a subject's limb, comprising:
detection means for detecting a signal dependent upon the arterial blood
5 volume in a limb of the subject when the subject is in a first posture and also
when the subject is in a second posture, different to the first posture; and
processing means for calculating a quantitative indicator that is dependent
upon the ratio of the signal for the first posture to the signal for the second
posture.
- 10 2. A system as claimed in claim 1, wherein the quantitative indicator is directly
proportional to the ratio of the signal for the first posture to the signal for the
second posture.
- 15 3. A system as claimed in claim 1 or 2, wherein the signal is a pulsating
component of a measured parameter, the measured parameter being
dependent upon the blood volume in the subject's limb.
- 20 4. A system as claimed in claim 3, wherein the calculation of the quantitative
indicator is additionally dependent upon the ratio of a non-pulsating
component of the measured parameter for the second posture to a non-
pulsating component of the measured parameter for the first posture.
- 25 5. A system as claimed in claim 4, wherein the quantitative indicator is directly
proportional to the ratio of the non-pulsating component of the measured
parameter for the second posture to the non-pulsating component of the
measured parameter for the first posture.

6. A system as claimed in any preceding claim, wherein the detection means comprises measurement means operable to measure a parameter indicative of the blood volume of the subject's limb when the subject is in a first posture and to measure the parameter when the subject is in a second posture and
5 comprising means for isolating a pulsating component of the measured parameter.
7. A system as claimed in any preceding claim wherein the limb is a foot.
- 10 8. A system as claimed in any preceding claim, wherein the position of the limb is changed between the first posture and the second posture.
9. A system as claimed in any preceding claim, wherein, in the first posture the limb is at a first elevation and in the second posture the limb is at a
15 second elevation.
10. A system as claimed in any one of claims 3 to 9, wherein the measured parameter is the intensity of light reflected from the limb and the ratio of the signal for the first posture to the signal for the second posture reduces
20 subject dependent influences such as variable light absorption of the blood and tissue in the limb for different subjects.
11. A method for assessing blood circulation in a subject's limb, comprising:
detecting a signal dependent upon the arterial blood volume in a limb of the
25 subject when the subject is in a first posture;
detecting the signal dependent upon the arterial blood volume in the limb of the subject when the subject is in a second posture, different to the first posture; and

21

calculating a quantitative indicator that is dependent upon the ratio of the signal for the first posture to the signal for the second posture.

12. A method as claimed in claim 11, further comprising:

5 measuring a parameter that is dependent upon the blood volume in the subject's limb; and

isolating, as the signal, a pulsating component of the measured parameter.

13. A method as claimed in claim 12, further comprising:

10 isolating a non-pulsating component of the measured parameter, wherein the quantitative indicator is additionally dependent upon the ratio of the non-pulsating component of the measured parameter for the second posture to the non-pulsating component of the measured parameter for the first posture.

15 14. A method as claimed in claim 13, wherein the limb is a foot.

15. A method as claimed in any one of claims 11 to 14, wherein the position of the limb is changed between the first posture and the second posture.

20 16. A method as claimed in any one of claims 11 to 15 wherein, in the first posture the limb is at a first elevation and in the second posture the limb is at a second elevation.

17. A system for assessing a subject's peripheral blood circulation, comprising:

measurement means for measuring a parameter dependent upon the blood
5 volume in a limb of the subject when the subject is in a first posture and also
when the subject is in a second posture, different to the first posture;

means for separating the parameter into a first component and a second
component; and

processing means for calculating a quantitative indicator wherein the
10 calculation takes as inputs the first component of the parameter for the first
posture and the first component of the parameter for the second posture.

18. A system as claimed in claim 17, wherein the first component is a
pulsating component and the second component is non-pulsating component.

15

19. A system as claimed in claim 17 or 18, wherein the indicator is dependent
upon the ratio of the first component of the parameter for the first posture to
the first component of the parameter for the second posture.

20 20. A system as claimed in claim 19, wherein the indicator is directly
proportional to the ratio of the first component of the parameter for the first
posture to the first component of the parameter for the second posture.

21. A system as claimed in any one of claims 17 to 20, wherein the indicator
25 is dependent upon the ratio of the second component of the parameter for the
second posture to the second component of the parameter for the first
posture.

23

22. A system as claimed in claim 21, wherein the indicator is directly proportional to the ratio of the second component of the parameter for the second posture to the second component of the parameter for the first posture.

5

23. A system as claimed in any one of claims 17 to 22, wherein the measured parameter is intensity of light.

10

24. A system as claimed in any one of claims 17 to 23, wherein the limb is a foot.

25. A system as claimed in any one of claims 17 to 24, wherein the position of the limb is changed between the first posture and the second posture.

15

26. A system as claimed in any one of claims 17 to 25, wherein, in the first posture the limb is at a first elevation and in the second posture the limb is at a second elevation.

20

27. A method for assessing a subject's peripheral blood circulation, comprising:

measuring a parameter dependent upon the blood volume in a limb of the subject when the subject is in a first posture and also when the subject is in a second posture, different to the first posture;

separating the parameter into a first component and a second component;

25

and

processing means for calculating a quantitative indicator wherein the calculation takes as inputs the first component of the parameter for the first posture and the first component of the parameter for the second posture.

24

28. A method as claimed in claim 27, wherein the first component is a pulsating component and the second component is non-pulsating component.

5 29. A method as claimed in claim 27 or 28, wherein the indicator is dependent upon the ratio of the first component of the parameter for the first posture to the first component of the parameter for the second posture.

30. A system for assessing a subject's peripheral blood circulation, comprising:
10 measurement means for measuring a parameter dependent upon the blood volume in a limb of the subject when the subject is in a first posture ;
means for separating the parameter into a first component and a second component; and
processing means for calculating a quantitative indicator wherein the
15 calculation takes as inputs the first component of the parameter for the first posture and the second component of the parameter for the first posture.

31. A system as claimed in claim 30, wherein the first component is a pulsating component and the second component is a non-pulsating
20 component.

32. A system as claimed 30 or 31, wherein the indicator is dependent upon the ratio of the first component of the parameter for the first posture to the second component of the parameter for the first posture.

25

33. A system as claimed in claim 32, wherein the indicator is directly proportional to the ratio of the first component of the parameter for the first posture to the second component of the parameter for the first posture.

34. A method for assessing a subject's peripheral blood circulation, comprising:
measuring a parameter dependent upon the blood volume in a limb of the
5 subject when the subject is in a first posture ;
separating the parameter into a first component and a second component;
and
calculating a quantitative indicator wherein the calculation takes as inputs the
first component of the parameter for the first posture and the second
10 component of the parameter for the first posture.

35. A system for assessing blood circulation in a subject's limb, comprising:
measurement means operable to measure a parameter indicative of the blood
15 volume of the subject's limb when the subject is in a first posture and to
measure the parameter when the subject is in a second posture and
comprising means for isolating a variable value of the measured parameter;
processing means for determining a quantitative indicator that is dependent
upon the ratio of the variable value of the parameter measured for the first
20 posture to the variable value of the parameter measured for the second
posture.

36. A system as claimed in claim 35, wherein the limb is a foot.

25 37. A system as claimed in claim 35 or 36, wherein in the first posture the limb
is at a first elevation and in the second posture the foot is at a second
elevation.

26

38. A system as claimed in any one of claims 35 to 37, wherein the measurement means comprises light sensing means and the parameter is the intensity of light reflected from the limb..

5 39. A system as claimed in claim 38, wherein the measurement means additionally comprises an illumination source of fixed intensity.

40. A method for assessing blood circulation in a subject's limb, comprising:
measuring a parameter indicative of the blood volume of the subject's limb
10 when the subject is in a first posture

isolating a time-variable value of the parameter measured for the first posture;
measuring the parameter indicative of the blood volume of the subject's limb
when the subject is in a second posture

15 isolating a time-variable value of the parameter measured for the second posture;

determining a quantitative indicator that is dependent upon the ratio of the variable value of the parameter measured for the first posture to the variable value of the parameter measured for the second posture.

20 41. A system or method for assessing a subject's pedal blood circulation substantially as hereinbefore described with reference to and/or as shown in the accompanying drawings.

42. Any novel subject matter or combination including novel subject matter
25 disclosed, whether or not within the scope of or relating to the same invention as the preceding claims.